

**WHAT IS CLAIMED IS:**

1           1.     A method for managing alarm information in a network management system,  
2     comprising the steps of:  
3           receiving alarm information generated from any of a plurality of network elements;  
4           determining whether or not said alarm information corresponds to a logical alarm;  
5           determining the location of the network element generating the alarm information, when it  
6     is determined that the alarm information corresponds to a logical alarm;  
7           searching a database to determine whether said database already has said alarm information  
8     stored therein, according to the location of the network element generating the alarm information;  
9           storing said alarm information when it is determined that said database does not have said  
10    alarm information already stored therein;  
11          increasing a count value representing a number of times in which the same alarm information  
12    has been generated, without redundantly storing said alarm information into said database, when it  
13    is determined that said alarm information is already stored in said database; and  
14          storing the increased count value at a position corresponding to said alarm information  
15    already stored in said database.

1           2.     The method as set forth in claim 1, wherein the step of searching said database further  
2     comprises the steps of:  
3           analyzing said alarm information to detect its positional value and event type; and

4 determining whether said database has the alarm information of the same positional value  
5 and event type.

1 3. The method as set forth in claim 1, wherein the step of searching said database further  
2 comprises the steps of:

3 detecting the positional value of said alarm information from its data format; and  
4 identifying destination information by analyzing a virtual path identifier and a virtual channel  
5 identifier of subscriber connection information corresponding to the alarm location to determine an  
6 identity of a subscriber from which said alarm information was generated.

1 4. The method as set forth in claim 1, further comprising a step of parsing said alarm  
2 information for storage into said database when it is determined that the alarm information does not  
3 correspond to a logical alarm.

1 5. The method as set forth in claim 1, wherein said database comprises a plurality of  
2 network element tables, each corresponding to a respective one of said network elements, said step  
3 of storing further comprising storing said alarm information into the corresponding network element  
4 table of said database according to the location of the network element.

1 6. The method as set forth in claim 5, further comprising a step of converting the alarm  
2 information through a database application interface into a database data format of said database to

be recorded as new alarm information in the network element table of the network element generating the alarm information.

7. The method as set forth in claim 5, further comprising steps of:

displaying said alarm information stored in said database;

entering search parameters for finding a particular error corresponding to the alarm information or for finding a particular network element and its corresponding alarm information; and

displaying information retrieved as a result of said step of entering search parameters.

8. A method for managing alarm information in a network management system connected to a plurality of subscribers at a plurality of network elements, comprising the steps of:

driving an alarm daemon processor when said network management system is powered on;

receiving, via said alarm daemon processor, alarm information generated from at least one of said network elements;

determining whether said alarm information is due to a logical error or a physical error in the network element generating the received alarm information;

determining the location of the network element generating the alarm information, when it is determined that the alarm information is due to a logical error;

searching a database to determine whether said database already has said alarm information stored therein, according to the location of the network element generating the alarm information;

storing said alarm information when it is determined that said database does not have said

13 alarm information already stored therein;

14 increasing a count value representing a number of times in which the same alarm information  
15 has been generated, without redundantly storing said alarm information into said database, when it  
16 is determined that said alarm information is already stored in said database; and

17 storing the increased count value at a position corresponding to said alarm information  
18 already stored in said database.

1 9. The method as set forth in claim 8, wherein the step of searching said database further  
2 comprises the steps of:

3 analyzing said alarm information to detect its positional value and event type; and  
4 determining whether said database has the alarm information of the same positional value  
5 and event type.

1 10. The method as set forth in claim 8, wherein the step of searching said database further  
2 comprises the steps of:

3 detecting the positional value of said alarm information from its data format; and  
4 identifying destination information by analyzing a virtual path identifier and a virtual channel  
5 identifier of subscriber connection information corresponding to the alarm location to determine an  
6 identity of a subscriber from which said alarm information was generated.

1 11. The method as set forth in claim 8, further comprising a step of parsing said alarm

information for storage into said database when it is determined that the alarm information is due to a physical error.

12. The method as set forth in claim 8, wherein said database comprises a plurality of network element tables, each corresponding to a respective one of said network elements, said step of storing further comprising storing said alarm information into the corresponding network element table of said database according to the location of the network element.

13. The method as set forth in claim 12, further comprising a step of converting the alarm information through a database application interface into a database data format of said database to be recorded as new alarm information in the network element table of the network element generating the alarm information.

14. The method as set forth in claim 12, further comprising steps of:  
displaying said alarm information stored in said database;  
entering search parameters for finding a particular error corresponding to the alarm information or for finding a particular network element and its corresponding alarm information; and  
displaying information retrieved as a result of said step of entering search parameters.